EDITORIAL
An Introduction to the Proceedings of the 2020 FUN Summer Virtual Meeting

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As an editor of this JUNE issue, I introduce an editorial, articles and a media review submitted for publication that are based on or inspired by presentations at the 2020 FUN Summer Virtual Meeting (SVM). Some FUN SVM presenters had articles ready to be published in the Fall 2020 JUNE issue [Volume 19(1)]. Booth et al. (2020) and Ryan et al. (2020) presented their Do-It-Yourself (DIY) approaches for students to inexpensively construct, use, and more deeply understand their own lab equipment. Both groups are developing calcium imaging lab exercises to monitor neural activity with DIY equipment. Hanzlick-Burton et al. (2020) described a series of on-line lab experiments for students to engage remotely in a lab teaching experience. Juavinett (2020) introduced using python coding for students to work remotely with the Allen Institute for Brain Science (AIBS) database to examine electrophysiological properties and morphology of many different types of mouse and human neurons. This article quickly inspired other educators, such as Ho et al. (2021), to develop the remote use of the AIBS meta data for virtual student projects during the early Covid pandemic. Seraphin and Stock (2020) engaged students remotely by creating "non-disposable assignments" using the online imaging databases Neurosynth and EduCortex. Linden et al. (2020) highlighted diversity in neuroscience by introducing biographies of neuroscientists into a required lecture class for neuroscience majors.

This JUNE issue contains twenty-five SVM related papers, not including two editorials describing the initial planning and final production of the SVM, and this editorial. We include an article from a satellite session before the SVM and an article inspired by a main theme of the SVM: Diversity, Equality and Inclusion (DEI). In the satellite session report, Chen et al. (2022) tackle the difficult task of identifying core concepts for neuroscience education. Based on a national survey of neuroscience educators and feedback by attendees of the satellite session, eight core concepts were identified. These concepts continue to be refined, and they will be presented fully in a future publication. This effort to identify core concepts for undergraduate neuroscience education complements the work of Wiertelak et al. (2018) to establish "Blueprints" for undergraduate neuroscience education in the new century.

A highlight of the SVM was the Keynote talk by Mays Imad who addressed the role of emotions in student learning, particularly during the stressful Covid period. Advice is offered on creating learning spaces that are collaborative, safe and empowering. This advice includes teaching the neurobiology of learning and stress as a practical understanding to reduce student perceived stress (Imad, 2022). Related to this topic, the literature of self-compassion is reviewed by Stutts (2022), along with recommendations for improvement of student (and faculty) resilience and stress reduction to facilitate learning. Too easily, self-criticism becomes destructive and counter-productive.

An editorial and full article continue a theme of diversity and inclusion of the earlier Seraphin and Stock article (2020) by first emphasizing the need for and introducing a new JUNE feature that will celebrate diversity in neuroscience (Frenzel and Harrington, 2022). A following full article highlights the personal stories of a selection of diverse neuroscientists in the first installment of this new JUNE feature (Frenzel et al., 2022). Casto et al. (2022) provide guidance to teach courses addressing the neuroscience of gender and sex that help support an inclusive curriculum. The authors offer suggestions for key topics to cover, including suggestions for teaching resources. They emphasize that the exclusion of women in biomedical research leaves large gaps in our understanding of sex/gender physiology. This article was not based on a SVM presentation. The authors requested this paper be included here because of its relevance for the DEI theme of the SVM.

Many articles in this JUNE issue address remote learning options and other resources for students and faculty. Heitler (2022) and Meir (2022) describe neuronal simulation programs that enhance and/or substitute for in-person neurophysiology lab exercises. Heitler's NeuroSim software has extensive tutorials for cellular and network neurophysiology. Higher level tutorials in NeuroSim can introduce students to computational neuroscience. Heitler also discusses the promise and limitations of simulations compared to in-person lab classes. Meir leads us through the development of action potential simulations that evolved over time to meet undergraduate educational needs as part of the SimBio Virtual/Tutorials offerings for students.

Creative virtual lab exercises introduce students to experimental techniques, data analysis and interpretation and journal figure understanding and preparation. Grisham et al. (2022) describe "FraidyRat", a three-week virtual lab module guiding students through virtual research protocols to understand the neural substrates of fear conditioning. Morrison (2022) presents virtual lab exercises in molecular approaches. Students explore immunocytochemical and western blotting techniques for antibody staining, fluorescent microscopy and gel electrophoresis to appreciate the diversity of brain cell types and morphologies. They learn by watching videos of scientists conducting these techniques, by analyzing experimental

data gathered by previous students, and they prepare data figures in a journal article style. Calderone et al. (2022) highlight the neuroscience collection (23 different student labs) of the broad physiology online learning platform "Lt" from ADInstruments. This platform can be integrated into in-person lab classes and be used virtually with students analyzing example data or with students using low-cost hardware to run experiments at home. In a video production tutorial, Wyttenbach (2022) gives detailed advice to produce high quality videos for both online and in-person teaching. Tailored laboratory videos of procedures and lab results can prepare students for an in-person lab exercise or replace hands-on work for student learning when classes are virtual.

Additional online resources for neuroscience classes and professional development are addressed in this SVM issue. Casimo (2022) showcases the AIBS web site with its vast potential for student data mining for classwork and semester projects. This open-source data mining can produce student publication of research data. See also educational uses of the AIBS database appearing in recent JUNE issues (Gilbert, 2018; Juavinett, 2020; Ho et al., 2021; Ryan and Casimo, 2021). Leussis (2022) reviews select open education resources (OERs) that can be used as online textbooks and videos and animations for specific lecture topics. Two free online textbooks for neuroscience are discussed, and platforms that collate OERs for education are evaluated. This article notes that the increasing availability of these online resources makes neuroscience education more equitable between wealthy and developing countries and between resource rich and poor academic institutions. TrainingSpace is a very large educational platform first introduced to the FUN community at the Society for Neuroscience meeting in 2019 (Grisham et al., 2021). George et al. (2022) update and detail resources available in TrainingSpace as a hub for approximately 500 online courses. These courses include lectures and tool tutorials that enrich course content and student and faculty development in a broad area of neuroscience, including computational neuroscience, neuroethics, and neuroinformatics.

Wee (2022) describes a personal experience adapting to pandemic teaching. University practical resources that trained faculty to produce high quality on-line courses are highlighted, and the importance of our learning community to share resources and support each other is emphasized. Upchurch (2022) uses "Google Meet" and "Google Docs" to teach a Behavioral Pharmacology course. Google Meet was used for audio only and background class conference calls; Google Docs in the foreground served as a simultaneous platform for instructor and students to edit, post web links, and share comments. Cook-Snyder and Ehlinger (2022) illustrate their adaptation of case studies for synchronous and asynchronous online courses. They offer detailed suggestions for effectively presenting case studies online.

Pollack (2022) presents a learning and memory experiment to examine the difference between deep processing, which is meaning-based learning, versus shallow processing, which is appearance and sound-based learning. Deep processing is more effective at remembering words than shallow processing. The online or in-person simple experiment introduces students to the neuroscience of memory and learning, experimental design and data analysis.

A variety of topics not under the umbrella of the main SVM themes will be of interest to neuroscience educators. Miles et al. (2022) review how student and faculty attitudes towards academic integrity (cheating) sometimes differ greatly, the variety of reasons students cheat, and how we can educate students and faculty to improve academic integrity. For community outreach, Flaisher-Grinberg (2022) describes an exciting program for faculty and students to bring neuroscience related topics to the local community. The education programs include academic-community partnerships with local elementary and high, town libraries, nursing homes, science museums, and scout troops. Gold and Leininger (2022) discuss teaching students "Critical Information Literacy", a discriminating approach to scientific literature to become aware of the systems of profit and social exclusion that shape knowledge sources, including disinformation and predatory journals. Buffalari (2022) uses guided and scaffolded worksheets in Behavioral Neuroscience and Cognition courses. The effectiveness of these worksheets is demonstrated in both individual student and shared group attitudes for the overall student learning experience and their feeling of transparency of instructor expectations. Focusing on opioid research papers, Hill (2022) addresses the challenge of helping students read and analyze primary research papers in a three-part assignment that includes scientific writing with instructor collaboration. Students co-create a timeline to establish each research article's context, present their article to the class and write a short perspective paper on the article that identifies related articles. Kaur (2022) describes an assignment to help students communicate their science studies effectively for a diverse audience beyond the STEM community. In a scaffolded assignment, they research a topic of interest, and produce and record a podcast aimed at the general public.

This JUNE issue celebrates the 25th anniversary of FUN Summer Workshops. We thank the authors and reviewers for their contributions to these SVM proceedings. We invite other FUN SVM workshop presenters who could not contribute to these proceedings to publish their creative educational work in future JUNE issues. We hope to see all of you in-person and synchronously at the next FUN summer workshop.

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Received July 6, 2022; accepted July 6, 2022.

The author thanks Drs. Alo Basu and Barbara Lom for offering helpful comments to improve this manuscript.

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